$$\Delta m_V = \Delta m + 0.0014(T_A - T_R) \text{ for } V$$

$$\Delta m_B = \Delta m + 0.0013(T_A - T_B) \text{ for } B$$

2.Atmospheric effect and correction (2nd order extinction coefficient)

It has been recommended to choose a comparison star with the same spectral class as variable star. However, in practice, this has been ignored or passed over in many cases.

The differential magnitude has the second order term containing k_2, and the color difference between comparison star and variable star (Henden 1982).

$$\Delta m_0 = \Delta m - k_2 \cdot \Delta(B-V)_0 \cdot X$$

Therefore attention should be paid to the fact that the term is fully dependent on X, not on ΔX.

The 2nd order extinction correction has been done by using $k_2 \cdot \Delta(B-V)_0$ which is derived from the relation of Δm-sec z diagram. The nightly values were obtained from the data of the check star and comparison star and applied to the light curves of AR Lac to get another interesting set of light curves, that could not be overlooked.

Washington 측광계의 표준화 연구

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본 연구는 1991년 10월 12일부터 1992년 6월 1일까지 8일 밤동안 Washington 측광계를 사용하여 관측한 자료와 ADC의 자료를 분석함으로써 Washington 측광계를 표준화시켰다. 이번 연구 결과 Washington측광계는 ADC의 자료와 전반적으로 잘 일치하나, 서울대 천문대가 보유한 Washington측광계는 C필터에서 적색광누출이 나타났고, 이 필터와 연관된 색지수에서 성간 적색화 값이 Canterna의 값보다 낮게 측정되었다.

ADC의 자료분석 결과 G, K형 별들에 대해 중원소함량을 나타내는 색지수와 중원소함량이 서로 잘 일치함을 알 수 있었고, 주계열성의 경우 온도지수와 온도와는 좋은 관계를 보임을 알 수 있었다. 그리고 이 측광계의 장점으로 나타난 CN지수와 CN특이성과는 특별한 관계를 찾기가 어려웠다. 그리고 이 측광계만으로는 광도계급의 구분을 다른 측광계만큼 분명하게 결정짓기가 어려웠으나, 표면중력과 이 측광계의 색지수와의 관계를 본 결과 초거성, 거성, 주계열성을 구분해 낼 수 있었다.

Three-Dimensional IR Models of Interplanetary Dust Distribution

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In order to find out the spatial distribution of interplanetary dust, we have calculated the thermal emission from the zodiacal cloud using three-dimensional density models. The results of calculation have been compared with the *IRAS* measurements of zodiacal thermal emission, which enabled us to determine the best model parameters for the heliocentric temperature gradient, wavelength dependence of absorption cross section, and radial density gradient. On the basis of the annual variation of the ecliptic latitude at which the zodiacal thermal emission shows maximum brightness, we deduced values for the inclination i and the ascending node Ω of the symmetry plane relative to the ecliptic: i = 1.°4 and Ω = 52°. A brief discussion will be presented on the three-dimensional density models and the symmetry plane.

OBSERVATION OF THE GREAT SUNSPOT IN 1989 AT MILLIMETER WAVELENGTH

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Solar observation at millimeter wavelength was performed with the KAO 14m radio telescope on March 15, 1989 when solar activity cycle 22 approaches to the maximum. We found the great brightness enhancement associated with the strong sunspots groups which are well visible in optical photograph. The brightness temperature of the strongest sunspot region is 11,330 K, i.e., 51.1% increasement of the quiet central disk's. In addition, the active regions on Hα photographs correlate very well with the regions of enhanced radio emission.

Magnetospheric MHD Wave Excitation Driven by Narrow-Banded Solar Wind Sources

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A monochromatic source for magnetospheric MHD waves is closely related to the solar wind-magnetosphere coupling. The source frequency becomes narrow-banded when the solar wind invokes the Kelvin-Helmholtz instability near the dawn- and dusk-side of the magnetosphere or when upstream waves in the foreshock region drive a periodic perturbation at the magnetopause. We will investigate how the narrow-banded external energy source produce MHD waves in the magnetosphere and introduce the effect of boundary interference which arise due to the magnetospheric cavity. In addition, dynamical aspects of the MHD wave propagation from the solar wind into the inner magnetosphere will be described both analytically and numerically. The result indicates that even a monochromatic energy source driven by the solar wind may produce a broad-banded wave spectrum, which is consistent with current observational data.